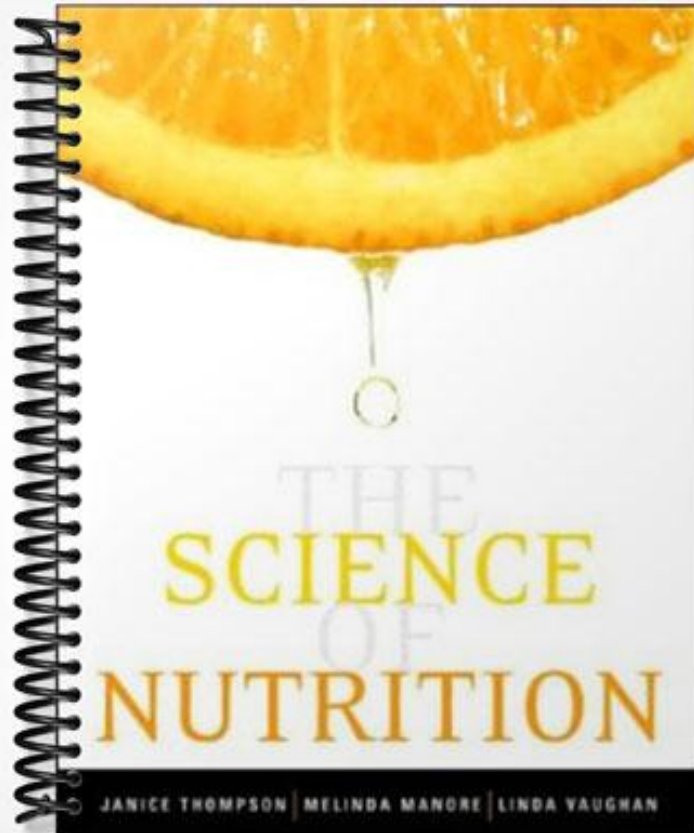


SOLUTIONS MANUAL



THE
SCIENCE
OF
NUTRITION

JANICE THOMPSON | MELINDA MANORE | LINDA VAUGHAN

Chapter 2

Designing a Healthful Diet

Chapter Summary

A healthful diet provides the proper combination of energy and nutrients and has four characteristics: it is adequate, moderate, balanced, and varied. There are many tools that can be used to help design a healthful diet. The Nutrition Facts Panel on food labels provides valuable information to assist individuals in choosing more healthful foods. The Dietary Guidelines for Americans are a set of principles developed by the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (USDHHS) to assist Americans in designing a healthful diet and lifestyle. The USDA has also developed MyPyramid, which can be used to design a healthful diet that meets the goals of adequacy, moderation, balance, variety, and nutrient density. Although MyPyramid provides guidelines based on age, gender, and activity, it still has limitations and variations for ethnic and cultural diversity are available only in the former Food Guide Pyramid format. Although there is no single diet that is right for all individuals, there are a few that seem to improve health for a majority of people. The 5-A-Day for Better Health Program and the DASH diet are two such plans. The Exchange System is another tool that can be used to plan a healthful diet. Originally developed for use among diabetics, this system closely monitors caloric intake and the nutrients that provide energy: carbohydrates, fats, and proteins. Eating out is challenging due to the large portion sizes and high fat and sodium content of many restaurant meals. However, healthful choices can be made by becoming educated.

The Nutrition Debate addresses the question: Does the 2005 USDA MyPyramid help us find the perfect diet?

Chapter Objectives

After reading this chapter, the student will be able to:

1. Define the components of a healthful diet, pp. 44–46
2. Read a food label and use the Nutrition Facts Panel to determine the nutritional adequacy of a given food, pp. 46–52
3. Describe the Dietary Guidelines for Americans and discuss how these guidelines can be used to design a healthful diet, pp. 53–57
4. Identify the food groups, number of servings, and serving sizes included in the MyPyramid, pp. 57–62
5. Define discretionary calories and discuss the role that discretionary calories play in designing a healthful diet, p. 60

6. Describe how the MyPyramid can be used to design a healthful diet, pp. 66–68
7. Identify two limitations of MyPyramid, pp. 68–71
8. Discuss the characteristics of the 5-A-Day for Better Health Program and the DASH diet plan, pp. 71–73
9. Describe the components of the Exchange System, pp. 73–75
10. List at least four ways to practice moderation and apply healthful dietary guidelines when eating out, pp. 76–78

Key Terms

adequate diet, p. 44	MyPyramid, p. 57
balanced diet, p. 46	nutrient density, p. 67
Daily Reference Values (DRV), p. 49	Nutrition Facts Panel, p. 48
DASH diet, p. 72	ounce-equivalent, p. 60
Dietary Guidelines for Americans, p. 53	percent daily values, p. 49
discretionary calories, p. 60	phytochemicals, p. 59
Exchange System, p. 73	Reference Daily Intakes (RDI), p. 49
healthful diet, p. 44	variety, p. 46
moderation, p. 45	5-A-Day for Better Health Program, p. 71

Chapter Outline

- I. What Is a Healthful Diet?
 - A. A healthful diet is adequate.
 1. An adequate diet provides enough energy, nutrients, and fiber to maintain health.
 - B. A healthful diet is moderate.
 - C. A healthful diet is balanced.
 - D. A healthful diet is varied.
- II. What Tools Can Help Me Design a Healthful Diet?
 - A. Reading food labels can be easy and helpful.
 1. Five components must be included on food labels.
 - a. A statement of identity tells us what the product is.
 - b. The net contents of the package describes the quantity of food in the entire package.
 - c. The ingredient list provides a list of all ingredients in descending order by weight.
 - d. The name and address of the food manufacturer, packer, or distributor is useful to get more detailed information about a product.
 - e. Nutrition information is the primary tool to assist an individual in choosing healthful foods.
 - i. This information can be used to learn about an individual food or to compare one food to another.
 - ii. Percent daily values explain how much a serving of food contributes to intake of the nutrients listed based on a 2,000 calorie diet.

- B. Dietary Guidelines for Americans are a set of principles developed by the USDA and USDHHS to assist Americans in designing a healthful lifestyle.
 1. The guidelines promote adequate nutrient intake while staying within energy needs.
 2. Key recommendations promote maintenance of a healthy body weight through balance of calories consumed and calories expended.
 3. Physical activity is recommended to promote health and body weight.
 4. The foods that are encouraged include a variety of fruits and vegetables, at least three ounces of whole grains, and three servings of low-fat dairy.
 5. The guidelines encourage moderate intake of healthy fats while limiting saturated fat, trans fat, and cholesterol.
 6. A diet high in nutrient-rich and fiber-rich carbohydrates but limited in sugary or starchy foods is encouraged.
 7. To maintain health, key recommendations promote lower sodium, higher potassium choices.
 8. The recommendation to drink alcohol in moderation highlights those people who should refrain from drinking.
 9. A healthful diet is safe from food-borne illness according to the guidelines.
- C. MyPyramid was created by the USDA as a guide to provide a conceptual framework for the types and amounts of foods we can eat in combination to provide a healthful diet.
 1. MyPyramid promotes six health messages including physical activity, moderation, personalization, proportionality, variety, and gradual improvement.
 2. Six food groups in the pyramid include grains, vegetables, fruits, oils, milk, and meat and beans.
 3. Discretionary calories represent the calories a person can consume once servings of nutrient-dense foods have been met.
 4. Number of servings in MyPyramid are based on the recommended calorie level.
 5. Serving sizes defined by MyPyramid are 1 cup or 1 oz-equivalent.
 6. Although variations of MyPyramid have not been developed for diverse populations yet, the many variations of the previous USDA Food Guide Pyramid are still useful.
 7. MyPyramid can be used to design a diet with the four key characteristics of a healthful diet.
 8. As a general guideline, foods with a high nutrient density should be chosen.
 - a. Nutrient density describes the relative amount of nutrients per amount of energy (or number of calories).
 9. There are some limitations to MyPyramid.
 - a. Serving sizes are relatively small and not consistent with the standard amounts we buy, prepare, and serve.
 - b. Low-fat and low-calorie food choices are not clearly defined in each food category and foods with healthy fats are not highlighted.
 - c. MyPyramid recommends that half or more grains eaten be whole grains, but does not necessarily encourage the consumer to choose all whole grains.

- D. Some diet plans can improve health.
 - 1. The 5-A-Day for Better Health Program encourages eating a minimum of five servings of fruits and vegetables every day.
 - 2. The DASH diet was developed in response to research into hypertension and suggests a diet similar to MyPyramid with a sodium intake of about 3 grams or less per day.
 - 3. Other diet plans may or may not have research support, but there is not one specific diet plan that meets the needs of all people.
 - E. The Exchange System is another tool that can be used to plan a healthful diet.
 - 1. This system was originally developed for diabetics.
 - 2. This system has also been used successfully in weight-loss programs.
 - 3. Exchanges are organized according to the amount of carbohydrate, protein, fat, and calories in each food.
- III. Can Eating Out Be Part of a Healthful Diet?
- A. There are hidden costs to eating out.
 - 1. Many restaurants serve large portions.
 - 2. Many meals are high in sodium and fat, as well as calories.
 - B. There are healthful ways to eat out.
 - 1. Choose more nutrient-dense, lower fat menu items.
 - 2. Choose smaller portions, whole grains, and leaner meat options.
 - 3. At sit-down restaurants choose “lite” menu items if available and practice wise selection of restaurants and healthier choices.

Activities

1. Students should use the food intake journal they previously completed and enter their foods for one or more days on the MyPyramid Tracker at <http://www.mypyramid.gov/> to determine whether or not their intake conforms to the Dietary Guidelines. This assignment can be used as a comparison to the Nutrition Analysis software program. Students should answer the following questions:
 - a. How many Dietary Guidelines do you meet?
 - b. How might you change your diet or lifestyle to more closely meet recommendations?
 - c. How could MyPyramid Tracker be used with clients?
2. Print the ingredient panels from three to five different food products on a sheet of paper and do not include the names of the foods. For instance, you might include ingredients from a granola bar, a “healthy” frozen dinner, and dog food. Tell students to select the food they would want to have with them if they were stranded on a desert island (if they had plenty of water) solely by reading the ingredients. Discuss why they chose as they did relating the discussion to the limitations of the ingredient panel, nutrient density, and discretionary calories. Either allow students to guess or disclose the foods that correspond with each ingredient panel. Note: If you choose to use dog food, simplify the names of ingredients. (It is usually the most selected item.)
3. Use the Nutrition Facts label from the foods in exercise #2 above (you may want to replace the dog food label) or have students bring to class three food products that contain a Nutrition Facts label. Instruct them to examine and discuss the Nutrition Facts Panels in small groups. Have them answer the following questions for each label:
 - a. Compare the foods in terms of serving size, calories, fat, fiber, and daily values for vitamins and minerals.

- b. Is the stated serving size the amount you would normally eat?
 - c. For each food product, discuss whether this would be considered a nutrient-dense food. Students should give reasons for their answer.
 - d. Select the most nutrient-dense food and explain your choice.
 - e. Explain how each food could be incorporated into a healthy diet according to the Dietary Guidelines and MyPyramid.
4. Using the fronts of the packages from the foods you used in #2 or #3 above or others that you find appropriate, discuss the various nutrition claims made by the product manufacturers. Ask students to compare the claims to the label and determine whether the claim conveys the nutritional contents of the product accurately. Do some claims deceive the consumer by making a product seem healthier than it is? How?
 5. Have students visit a restaurant that provides nutrition facts for its meals. As an alternative, this information can be accessed online for many restaurants. Students should try to plan a healthful meal from the restaurant's menu. Discussion in class can address whether or not it was possible to find healthy options. Students should also state if they would order the healthy option if they were eating at this restaurant. Why or why not?
 6. Many believe that we are living in a "toxic" environment that makes living a healthful life extremely difficult. In small groups, have students list as many nutrition or activity-related factors as they can think of that contribute to this "toxic" environment. For each factor, group members should discuss whether or not they believe it should be regulated by the government in some way. Those who believe it should be regulated should state what type of regulation they believe would be most appropriate. Possible options might include a tax, more information on food labels, or stricter regulation of the types of foods sold or the types of ingredients used. If there is disagreement on any issues, a debate can be scheduled as an additional activity.

Diet Analysis Activity

7. If students are using MyDiet Analysis they can use the nutritional assessment previously completed. If students are using EvalúEat, they will need to enter their food intake journal on the MyPyramid Tracker at <http://www.mypyramid.gov/>. Students should note the MyPyramid information provided by the diet analysis software and answer the following questions:
 - a. Do your intakes meet recommendations for each food group?
 - b. What food groups are you too high?
 - c. What food groups are you too low?
 - d. What changes can you make in your diet to more closely meet the recommendations of MyPyramid?

Nutrition Debate Activity

8. MyPyramid was the first admission of the USDA that the "one plan fits all" approach is not very practical in such a diverse country. In addition, the government updates the Dietary Guidelines regularly to reflect the best science of the time. However, since the standardization of the food label, the only change that has been made in the Nutrition Facts Panel is the addition of trans fat. Have students debate the following questions:
 - a. Considering the changes in the Dietary Guidelines and MyPyramid, is the Nutrition Facts Panel an adequate tool for food selection?
 - b. Do the limitations of the Nutrition Facts Panel prevent it from being useful?
 - c. Is it practical to change the Nutrition Facts Panel with changes in science?